Raghav Arora

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EDUCATION

M.S., Electrical and Computer Engineering | May 2026
The University of Texas at Austin | GPA: 3.86
Research Advisor: Prof. Peter Stone

B.E., Electrical and Electronics Engineering | May 2022
Birla Institute of Technology and Science, Pilani | GPA: 8.86 (out of 10)

RESEARCH and ENGINEERING PROJECTS

RoboCup 2025
UT Austin | 2nd Place, RoboCupAtHome

- Participated in Domestic Standard Platform League of RoboCupAtHome competition in Salvador, Brazil.
- Built a unified system for general-purpose service robot that can work in real world conditions under different lightings and in crowded environments.
- Total 2 stages, eight tasks, with an additional final task for the top 2 teams.
- Key Highlight: Using Behaviour Trees and Multi-Pedestrian Tracking, our robot followed a single human in the presence of 100s of onlookers.

Graduate Research Assistant | April 2024 – Present
UT Austin (Supervisors: Prof. Peter Stone, Dr. Yoonchang Sung)
Project: VLM Guided Task and Motion Planning

- Developed correlational particle filter integrating LLM-generated object pose beliefs with visual observations.
- Created 3D Scene Graph Representation for robot observations, and a framework for VLM-guided TAMP .
- Reduced real-world execution time on Toyota HSR by 67% vs. baseline planners.

Research Engineer | Oct 2022 – April 2024
IIIT Hyderabad
Project : Foundation models for Household Robotics

- Designed multimodal graph networks for commonsense reasoning in home robotics.
- Achieved a 42% higher success rate compared to baseline language models.
- Used LLMs for extracting user patterns and preferences used by a household assistive agent to *anticipate* future tasks and prepare for them.
- Achieved 31% reduction in execution time compared with a system that does not consider upcoming tasks.

Relevant Publications

- Large-Language-Model-Guided State Estimation for Partially Observable Task and Motion Planning: Y. Kim, **Raghav Arora**, R. Martín-Martín, P. Stone, B. Abbatematteo, Y. Sung
  Under Review: ICRA 2026
- Anticipate & Act: Integrating LLMs and Classical Planning for Efficient Task Execution in Household Environments: **Raghav Arora**, S. Singh, K. Swaminathan, A. Datta, B. Bhowmick, K. Jatavallabhula, M. Sridharan, M. Krishna
  In: IEEE International Conference on Robotics and Automation (ICRA) 2024. Yokohama, Japan
- CLIPGraphs: Multimodal Graph Networks to Infer Object-Room Affinities: Ayush Agrawal*, **Raghav Arora***, A. Datta, S. Banerjee, B. Bhowmick, K. Jatavallabhula, M. Sridharan, and M. Krishna
  In: 32nd IEEE International Conference on Robot and Human Interactive Communication 2023. Busan, Korea

Technical Skills

- **Areas of Interest** – *Robotics, Reinforcement Learning, TAMP, Perception, Foundation Models*
- **Proficient in :** *Python, Pytorch, Keras, Git, Latex, C++, Java, Docker*
- **Robotic Simulators :** *IsaacLab, Pybullet, Coppeliasim, AI2THOR, AIHabitat*